Work Orde September-13-12			V.	*900	า88*						Page 1
Revision ID:	D212-664-20 Crosstube Aft	01		Accept	*N900	040	100	* Se	tup Stai	1 7	S1* S2*
	9/17/12	Start Qty: 1.00	*1*		Cust Item I	D:	1			i Vi	()
Required Date:	0/12/12	Req'd Qty: 1.00	*1*		Customer:						
Reference:											
Approvals:	Process Pla	n: MLJ	Date: 12-69-	∑ Tooling:	Da	ate:		Ru		!/	R1*
	QC:		Date:	SPC (Y/N):	. Da	ate:			Sto	*N	R2*
Sequence ID/ Work Center ID	A.	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	,	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Rev	ision Nbr		=							
D212-664-241 DSI9563	Rev B	D (DEO)	96	, D	5						
100		DOCUMENT CONTROL		0.00	103]	angerer en	ere e una una la ruma	A	4011	NOT 1	2-10 -
DC		Memo		0.00	۸ 4.			U	··V-		
Document Control	,	Photocopy blu	efile and create labels	as per PPP D212-664-201	CHG005						
	× .										
110		Pick Kit	•	0.00	pho"						
110		Packaging				. N	10	17	101	17	
Packaging	÷	Memo		0.00	,	1.			101	1 4	
Packaging	2 (•									

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WORK ORDER NON-CONFORMANCE / UPDATE

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and the an indular	•
DQA Date: 12/11/02	- S
	22

	_							QA Closed:	Date	:					
Work Orde	er:	300	88		DISPOSITION		AGAIN	IST DEPARTMENT	DEPARTMENT/PROCESS						
Part N	10. <u>D212</u>	2- <i>66</i> 2-19°	1	01	Rework Scrap Use-as-is Work Order Update	Scrap Machining Small Fab Use-as-is Thermoforming Finishing			Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other					
Root	Test 1			Descri	ption of work order update	Initial	Action	Sign &							
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Description	Date	Verification	QC Inspector					
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved	12/19/12	120		€vsi	HING 15 OVER TOLERANCE	OAS 12 2.89 14/17	Occeptable per attach		12/10/15	0A5) 16 3-6					
					F	AULT CATE	GORY	•							
Landii	ng Gear				General										
	Bending Centre No Cracks Crushed/ Cuffs Heat Trea Inspectio	Crimped at n Strip in	-	o/s	Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes	Instruc	ion Incomplete tions Incomplete/Unclear enance eled	Ovalized Over/Unde Part Incorre Part Lost/M Part Moved Positioned Power Loss	ect lissing l Wrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other					
Ripples in Bend Drill Holes Torque Waves in Extrusion Drawing			Out of Calibration												
Turning Sequence Finish				⊢	Out of Sequence										
	Waye/Tw	•		-	Folio	\vdash	Dimensions								

Work Ord September-13-1				*900			Page 2		
Item ID: Revision ID: Item Name:	D212-664-20 Crosstube Aft) 1 :		Accept	*N900	<u>040100</u>) * s	Setup Star	14.21
Start Date: Required Date: Reference:	9/17/12 : 10/12/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:	ID:			
Approvals:	Process Plan:QC:		Date:	Tooling: SPC (Y/N):	D	I	Run Star Stop	"IVIR"	
Sequence ID/ Work Center II 120 *120 *CNC Bend 2 CNC Alpha 160 Be	BENDING MAC			Set Up/ Run Hours 0.00 0.00 using CNC bender progra	·	Tool # Plan Code	Accept Qty	Reject Qty	Reject Insp. Number Stamp
130 *130*		QC15- Crosstube Dimen	sional Check	0.00 DAS	1 .				

Quality Control

Memo

0.00 0.00 17/10/12

NCR:	Yes /	No
NUN.	162 /	INO

DQA: ____ Date: ____

NCR: Y																
				_		_						QA Closed:	Date:			
Work Orde	r.					۱	DISPOSITION	ı		AGAIN	ST DE	PARTMENT/	PROCESS			
WOIK OIGE	٠٠ -		· · · · · · · · · · · · · · · · · · ·			1	Rework			Skid-tube Crosstu	be]	Water Jet	Engineering		
Part N	ο.					١	Scrap Machining Small Fab				_	Prod. Eng. Coor. Quality				
	-					1	Use-as-is	ı	Therm	oforming Finishi	ng	Rec/Stor	e/Packaging	Other		
NCR N	ο.					١	Work Order Update			Large Fab Composi	ite 🔃]	Supplier			
					· · · · · · · · · · · · · · · · · · ·		<u> </u>					T 0: 0 T				
Root					Desc	•	otion of work order update		nitial	Action		Sign &	Manifiaakian	OC Imamantan		
Cause	_	Date	Step	Qty		0	r Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector		
oc/Data	4															
quip/Tooling	\dashv															
perator	\dashv															
1aterial	\dashv															
etup	\dashv				`											
ther rocess	\dashv			3												
upplier	\dashv															
raining	\dashv															
Inapproved								1								
1			<u> </u>	L			F	AUL	T CATE	GORY						
Landir	ng G	Gear					General					_				
		Bending			Γ		Bend		Grain			Ovalized		Pressure/Forced		
[Centre No	ot Concer	ntric to	o/s [BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure		
		Cracks					Broken/Damaged		Inspect	on Incomplete		Part Incorre	ct	Weld		
		Crushed/0	Crimped.				Burrs		Instruct	ions Incomplete/Unclear		Part Lost/Mi	ssing	Wrong Stock Pulled		
		Cuffs					Contamination		Mainte			Part Moved				
		Heat Trea	it				Countersink		Mislabe	led		Positioned V		_		
		Inspection	n Strip in	Tube			Cut Too Short	Misread Power Loss/Surge Othe				Other				
		Ripples in					Drill Holes	Offset								
		Torque W	aves in E	xtrusio	n [Drawing		4	Calibration						
		Turning S	equence				Finish		Out of	Sequence						
		Wave/Tw	ist in Tub	oe			Folio		Outside	Dimensions			0.0			

Work Ord September-13-1				*900				1				
Item ID: Revision ID:	D212-664-20	01		Accept	*N900	<u> </u>	100	*	Setup	Start	*N	S1*
Item Name:	Crosstube Aft									Stop	*N	S2*
Start Date: Required Date:	9/17/12 : 10/12/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item Customer:							
Reference:									Run	Start		
Approvals:	Process Pla	n:	Date:	Tooling:	D	Date:			Run		*N	R1*
	QC:		Date:	SPC (Y/N):	D	Date:				Stop	*N	R2*
Sequence ID/		Operation		Set Up/	Tool ID	Tool #		Accept			Reject	Insp.
Work Center I	D	Description		Run Hours			Code	Qty	Qty	ľ	Number	Stamp
140				0.00				_	,			
140 Crosstubes		Crosstubes Memo		0.00				Kr	1	12-	-10.	-15
Crosstubes				g D212-664-241 using dril ate tower holes #8 as per Ç								
		DT8550 &		per Dwg D212-664-241 uns between holes, both sides.								
		3-Scribe par 241	rt # and batch # using vil	orating stylus as per Dwg [0212-664-							
				NDLIND CROSSTUBE.* damage within limits as pe		KA	7 1. 1	2-1	0-1	5		

150

QC5- Inspect part completeness to step on W/O *150*

Quality Control

WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.

444									DQA:	Date:	٠
NCR: Yes	/ No				WORK ORDER NON-C	ONFOR	MANCE / UI		QA Closed:	Date:	•
Work Order:					DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part No. Rework Skid-t Scrap Machin Use-as-is Thermoform					Skid-tube Machining moforming Large Fab	Crosstube Small Fab Finishing Composite	b Prod. Eng. Coor. Quality g Rec/Store/Packaging Other				
Root				Descri	ption of work order update	Initial	Α	ction	Sign &		
Cause	Date	Step	Qty	C	or Non-conformance	Chief Eng	Des	scription	Date	Verification	QC Inspector
occ/Data quip/Tooling Operator Material etup Other Process supplier Training Unapproved			11								
					F.	AULT CATE	GORY				

Mislabèled Misread Power Loss/Surge Other Inspection Strip in Tube Cut Too Short Ripples in Bend Drill Holes Offset Out of Calibration Torque Waves in Extrusion Drawing Out of Sequence Turning Sequence Finish Folio Wave/Twist in Tube **Outside Dimensions**

Grain

Hardware

Maintenance

Inspection Incomplete

Instructions Incomplete/Unclear

Ovalized

Part Incorrect

Part Moved

Part Lost/Missing

Positioned Wrong

Over/Under tolerance

Pressure/Forced

Weld

Temperature/Cure

Wrong Stock Pulled

General

Bend

Burrs

BOM/Route

Contamination

Countersink

Broken/Damaged

Landing Gear

Bending

Cracks

Cuffs

Heat Treat

Crushed/Crimped.

Centre Not Concentric to O/S

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Order ID 90088 *90088* Page 4 September-13-12 1:08:33 PM D212-664-201 Accept Item ID: *N900040100* Setup Start Revision ID: Crosstube Aft Item Name: **Start Date:** 9/17/12 Start Qty: 1.00 **Cust Item ID:** Required Date: 10/12/12 Req'd Qty: 1.00 **Customer:** Reference: Run Process Plan: ____ Date: Tooling: Approvals: Date: Stop SPC (Y/N): Date: Date: Sequence ID/ Operation Tool ID Tool # Plan Set Up/ Accept Reject Reject Insp. Work Center ID **Description** Number Stamp **Run Hours** Code Qty **Qty** 0.00 160 *160* HandFXtube 0.00 ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.*** Hand Finishing Crosstubes 1- CLEAN CROSSTUBE WITH WASH'N WIPE 180 Outsource process - NDT per QSI038 4.1 0.00 *120* 0.00 Outsource2 Memo ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.*** Outsource process - NDT Liquid Penetrant Inspection as per QSI 038

190

Receive & Inspect for Damage & Mat'l Certs

Issue P/O: 18/36 LPI as per ASTM 1417 Level 2

Attach copy of NDT results to work order

0.00

190

Packaging

Packaging

Memo

0.00

Packaging

WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.

Ensure copy of NDT results attached to work order.

[2/s/14/6 ()

DQA: _____ Date: ____

NCR: Y	ICR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE														
•	,						QA Closed: Date:								
Work Orde	r:				DISPOSITION				AGAINST DE	PARTMENT	PROCESS				
					Rework]	Skid-tube Crosstube			1	Water Jet	Engineering			
Part N	lo				Scrap Machining Small Fab					1	d. Eng. Coor.	Quality			
					Use-as-is	TI		oforming	Finishing	Rec/Stor	e/Packaging	Other			
NCR N	lo				Work Order Update	j	Large Fab Composite Supplie				Supplier	J [_]			
Root				Descri	ption of work order update	Initi	al	Ac	tion	Sign &					
Cause	Date	Step	Qty		or Non-conformance	Chief	Eng	Desc	ription	Date	Verification	QC Inspector			
Doc/Data															
quip/Tooling															
Operator															
Material															
Setup															
Other												·			
Process			1												
Supplier							- 1								
Training															
Unapproved									- CY						
						AULT C	ATEC	GORY							
Landir	ng Gear				General					-	_	_			
	Bending			-	Bend		ain			Ovalized	Ļ	Pressure/Forced			
	Centre N	lot Conce	ntric to (o/s	BOM/Route	Hai	rdwar	re		Over/Under	tolerance	Temperature/Cure			
	Cracks				Broken/Damaged	Ins	pection	on Incomplete		Part Incorre	ct _	Weld			
	Crushed	/Crimped			Burrs	Ins	tructi	ions Incomplete/	/Unclear	Part Lost/M	issing	Wrong Stock Pulled			
	Cuffs				Contamination	Ma	ainte	nance		Part Moved		*			
	Heat Tre	at			Countersink	Mi	slabel	led		Positioned \	Vrong _				
	Inspection	on Strip in	Tube		Cut Too Short	Misread Power Loss/Surge Othe				Other					
	Ripples i	n Bend			Drill Holes	Offset									
	Torque \	Waves in I	Extrusio	n [Drawing	Out of Calibration									
	Turning	Sequence			Finish	Ou	t of S	equence							
	Wave/T	wist in Tul	be		Folio	Ou	itside	Dimensions							

Work Orde September-13-1.				P V Adam B Mineral II M			Page 5					
Item ID: Revision ID:	D212-664-20	01		Accept	*N900	040	100)*	Setup	Start	*N	S1*
Item Name:	Crosstube Aft									Stop	*N.	S2*
Start Date:	9/17/12	Start Qty: 1.00	*1*		Cust Item I	D:						
Required Date:	10/12/12	Req'd Qty: 1.00	*1*		Customer:							
Reference:			•									
Approvals:	Process Pla	n:	Date:	Tooling:	Da	nte:	-		Run	Start	*N	R1*
			Date:	_	Date:					Stop	*N	R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accep Qty	t Rej Qty		Reject Number	Insp. Stamp
200		QC5- Inspect part comple	eteness to step on W/O	0.00								-
200		Memo		0.00	11/10/16							
Quality Control		***WEAR	LATEX GLOVES WHEN	HANDLING CROSSTU	JBE.***							
		Inspect for d	amage & ensure results a	re as per Dwg D212-664-	241							
204		Crosstubes Chemical Cor	nversion	0.00								•
* 204 * HandFXtube		Mana		0.00				i_		Ø	Ø	A8
Hand Finishing Cro	sstubes	Memo ***WEAR l	LATEX GLOVES WHEN		JBE.***							12-10-1
			RE WASH AND THEN USE BEFORE CHEMICAL		CLEAN					t		

206

QC7-Inspect Chemical Conversion Coat

206

Memo

Quality Control

WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.

NCR:	Yes	/	No

WORK ORDER NON-CONFORMANCE / LIPDATE

DQA: Date:

NCR: Y	es / No				WORK ORDER NON-	CONFOR	WIANCE / OF	DAIL	QA Closed:	Date	2:
Work Orde	r·				DISPOSITION			AGAINST DE	PARTMENT,	PROCESS	
Part N					Rework Scrap		Skid-tube Machining	Crosstube Small Fab	ł .	Water Jet d. Eng. Coor.	Engineering Quality
NCR N	0				Use-as-is Work Order Update	Ther	moforming Large Fab	Finishing Composite	Rec/Stoi	e/Packaging Supplier	Other
Root				Descri	iption of work order update	Initial	Ac	tion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data											
quip/Tooling											
Operator											
Material		ļ				<u> </u>	ľ				
Setup						÷ \$.					
Other											
rocess			A.								
Supplier											
Training	_										
Unapproved									<u> </u>		
						FAULT CAT	EGORY				:
Landir	ng Gear			_	General		-		- 1	_	_
	Bending				Bend	Grain			Ovalized	1	Pressure/Forced
Ì	Centre N	ot Concer	ntric to (o/s	BOM/Route	Hardw		ļ	Over/Under	tolerance	Temperature/Cure
	Cracks			<u></u>	Broken/Damaged	⊢ ⊣ `	tion Incomplete		Part Incorre	⊢	Weld
	Crushed/	Crimped.		L	Burrs	Instruc	ctions Incomplete/	/Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs			_	Contamination	Maint	tenance		Part Moved		
	Heat Trea	ət			Countersink	Mislat	eled		Positioned \	N rong	
	Inspectio	n Strip in	Tube		Cut Too Short	Misrea	ad .		Power Loss,	'Surge	Other
	Ripples ir	n Bend			Drill Holes	Offset					
	Torque V	Vaves in E	xtrusio	ո [Drawing	Out of	Calibration				
	Turning S	equence		Γ	Finish	Out of	Sequence				
	Пwave/Ти	ist in Tul	ne .		Folio	Outsin	le Dimensions				

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Work Ordenserver 13-1.				*900	188*						Page 6
Item ID: Revision ID: Item Name:	D212-664-2 Crosstube Aft			Accept	*N900	040	100) * s	Setup Sta	1 1	S1* S2*
Start Date: Required Date: Reference:	9/17/12 10/12/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item 1 Customer:	ID:					
Approvals:	Process Pla	an:	Date:	Tooling: SPC (Y/N):		ate:		I	Run Sta Sto	I/J	R1* R2*
Sequence ID/ Work Center II 210 *210* SprayPaint Spray Painting		1-Prime insi 2-Paint outsi QSI 005 4.2	LATEX GLOVES WHE de and outside crosstube ide crosstube as per DEC 22888 6:30 6:7:00 23638 3361 6:30	D212-667-241 with Whit		Tool#	Plan Code	Accept	Reject Qty	Reject Number	Insp. Stamp
220 * 27 0* QC		QC14- Inspect Spray Pai	nt	0.00							DAS 05 12:10:27

Then, Wrap in plastic bag to protect from scratches

Quality Control

NCR:	Yes	/	No

DQA: ___

Date:

NCR: Y	es.	/ No				WORK ORDER NON-	CON	NFORN	//ANCE / UP	PDATE			• •
		,									QA Closed:	Date:	
Nork Orde	٠.٠					DISPOSITION				AGAINST DE	PARTMENT	PROCESS	
WOIK OIGE	:1.					Rework	ا ٦		Skid-tube	Crosstube	1	Water Jet	Engineering
Part N	io.					Scrap			Machining	Small Fab	Pro	d. Eng. Coor.	Quality
· uiti						Use-as-is	1		noforming	Finishing	4	e/Packaging	Other
NCR N	10.					Work Order Update]		Large Fab	Composite		Supplier	
							لب		Α.		Cian 0		
Root			e.	٥.		iption of work order update		nitial		ction	Sign & Date	Verification	QC Inspector
Cause	_	Date	Step	Qty		or Non-conformance	Cn	ief Eng	Desi	cription	Date	vernication	QC inspector
oc/Data	\dashv												
quip/Tooling perator	\dashv												
faterial	\dashv												
etup	\neg												
ther	_											i	
rocess													
upplier													
raining		,	}										
Inapproved													
							FAUL	T CATE	GORY				
Landi	ng (Gear				General		-		, _	٦.		_
		Bending			_	Bend	L	Grain			Ovalized		Pressure/Forced
		Centre No	ot Conce	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	}	Temperature/Cure
	L.	Cracks				Broken/Damaged		Inspect	ion Incomplete		Part Incorre	<u> </u>	Weld
		Crushed/0	Crimped.			Burrs	<u> </u>	-1	ions Incomplete	/Unclear	Part Lost/M	issing	Wrong Stock Pulled
		Cuffs				Contamination		Mainte			Part Moved		
	_	Heat Trea	ıt		_	Countersink	_	Mislabe	eled		Positioned \		_
		Inspection		Tube	L	Cut Too Short	<u> </u>	Misread	t	<u>L</u>	Power Loss/	Surge	Other
	<u> </u>	Ripples in				Drill Holes		Offset					
		Torque W			n L	Drawing	\perp	4	Calibration				
	L	Turning S				Finish		4	Sequence				
		Wave/Tw	ist in Tul	эe		Folio	-	Outside	Dimensions				

	ICR:	Voc	1	NIA
n	IC.R:	Yes	/	Nο

NCR:	/es	/ No				WORI	ORDER NON-O	COI	NFORM	/ANCE / UPI		DQA:	Date Date	* *
Work Ord	er:						DISPOSITION Rework]		Skid-tube	AGAINST DE]	Water Jet	Engineering
Part i	۷o.						Scrap	┧╽		Machining	Small Fab	4	d. Eng. Coor.	Quality
NCR I	No.					Wo	Use-as-is rk Order Update		Thermoforming Finishing Large Fab Composite			Rec/Stor	e/Packaging Supplier	Other
Root					Desci	iption of v	ork order update	1	Initial		tion	Sign &		
Cause		Date	Step	Qty		or Non-co	nformance	Ch	nief Eng	Desci	ription	Date	Verification	QC Inspector
oc/Data quip/Tooling														
perator Naterial														
etup		,												
ther										}				
rocess														
upplier														
raining												1		
Inapproved	<u> </u>								TCATE	CORY		<u> </u>		
Landi							General 💒	AUI	LT CATE	GURY				
Land	LIB (Bending			Γ	Bend	deliciai ».	Г	Grain			Ovalized	Γ	Pressure/Forced
	H	Centre No	ot Concer	ntric to C	o/s	BOM/Ro	oute		Hardwa	re		Over/Under	tolerance	Temperature/Cure
		Cracks				⊣	Damaged		Inspect	ion Incomplete		Part Incorre	ct	Weld
		Crushed/0	Crimped.			Burrs			Instruct	ions Incomplete/	Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
		Cuffs				Contami	nation		Mainte	enance		Part Moved		
		Heat Trea				Counter			Mislabe	eled		Positioned V		_
	_	Inspection		Tube	L	Cut Too		<u> </u>	Misread	t	L	Power Loss/	Surge	Other
	<u> </u>	Ripples in			-	Drill Hol		_	Offset					
	_	Torque W			· -	Drawing		-	-	Calibration				
	\vdash	Turning So			-	Finish		\vdash	7	Sequence				
	1	Wave/Tw	ist in Tut	oe .	- 1	Folio		1	Joursiae	Dimensions				

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Work Orde September-13-1.				*900	ገጸጸ*				Page 8
Item ID: Revision ID: Item Name:	D212-664-2			Accept	*N900	0040100)* Setup	Start Stop	*NS1* *NS2*
Start Date: Required Date: Reference:	9/17/12 10/12/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item Customer:				
Approvals:	Process Pla	ın:				Oate:	Run	Start Stop	*NR1* *NR2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool # Plan Code	Accept Re Qty Qt		Reject Insp. Number Stamp
*260 *260* QC Quality Control		QC4- 100% Inspect kits Memo	for completeness	0.00	DAS 15 15 10 3) 12 10	-3)			
* 77 0* Packaging Packaging		Packaging Memo Identify and	pack for shipping as per	0.00	hault 103				12/10/3/5
280 *280*		QC21- Final Inspection -	Work Order Release	0.00				6	111/24
QC Quality Control		Memo		0.00				,	MC5 12-10-3

									DQA:	Date:	
NCR: Yes	/ No				WORK ORDER NON-C	CONFOR	MANCE / UP		QA Closed:	Date:	-
Work Order:					DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Work Order.					Rework		Skid-tube	Crosstube		Water Jet	Engineering
Part No.					Scrap	• •	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
NCR No.			-		Use-as-is Work Order Update	Thern	noforming Large Fab	Finishing Composite	Rec/Sto	re/Packaging Supplier	Other
Root				Descri	ption of work order update	Initial	Ac	tion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process										•	
Supplier		i									
Training]										
Unapproved]										

Landing Gear General Pressure/Forced Bend Grain Ovalized Bending BOM/Route Over/Under tolerance Temperature/Cure Centre Not Concentric to O/S Hardware Weld Broken/Damaged Inspection Incomplete Part Incorrect Cracks Instructions Incomplete/Unclear Wrong Stock Pulled Crushed/Crimped Burrs Part Lost/Missing Part Moved Maintenance Cuffs Contamination Mislabeled Positioned Wrong Heat Treat Countersink Misread Power Loss/Surge Other Inspection Strip in Tube Cut Too Short Drill Holes Ripples in Bend Offset Out of Calibration Torque Waves in Extrusion Drawing Out of Sequence Turning Sequence Finish

Outside Dimensions

· FAULT CATEGORY

Wave/Twist in Tube

Folio

Picklist Print

*September-13-12 1:08:33 PM

Work Order ID:

90088

Parent Item:

D212-664-201

Parent Item Name:

Crosstube Aft

Start Date: 9/17/12

Required Date: 10/12/12

Page 1

Start Qty: 1.00

Required Qty: 1.00

:Comments:

IPP Rev:E04.02.16ReformatK/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM

IPP Rev:G 07-04-30

As per Rev C JLM

IPP Rev:H 08-05-22 up date Qty of rubber cushion DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-201TRNRevC Crosstube Turning Detail		Manufactured	No	3909	52_	110	Each	0.0000	1		M	o i	2/10/12
D3595-063-530 RUBBER CUSHION		Manufactured	No			230	Each	162.0000	2	2	MI	2 10	27
				Location		Loc Qty	<u>Lo</u>	c Code					
				LG		50							
				799	932	13							
				826	556	37							
				LG051		73							
				878	333_	73							
				MAT052		39							
				634	107	6							
				671	.85	6							
				700		18							
				727		2						_	
				757	783	7							
D2940-1 Support		Manufactured	No			230	Each	23.0000	2	2	M/1	2 10	27
				Location		Loc Qty	<u>Lo</u>	c Code					
				LG052		23							
				791	18	2							
				826	557	I							
				879	21_	20							

NCR:	Yes	/	No

DQA: ____Date: _____

NCR: Y	es / No				WORK ORDER NON-	CON	FORN	HANCE / UPL	JAIE	QA Closed:	Date	
					DISPOSITION				AGAINST DE			
Work Orde	r:				DISPOSITION	_			AGAINST DE	r ANTIVICITIY	_	
Part N	0			_	Rework Scrap		ľ	Skid-tube Machining	Crosstube Small Fab	4	Water Jet d. Eng. Coor.	Engineering Quality
NCR N	o				Use-as-is Work Order Update	_		noforming Large Fab	Finishing	Rec/Stor	e/Packaging Supplier	Other
Root				Descri	ption of work order update	In	itial	Act	ion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chi	ef Eng	Descr	ription	Date	Verification	QC Inspector
oc/Data												
quip/Tooling						1						
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Other							i					
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1	Centre N	ot Conce	ntric to (o/s	BOM/Route	\vdash	Hardwa		_	Over/Under	 	Temperature/Cure
	Cracks			<u> </u>	Broken/Damaged	-	•	ion Incomplete		Part Incorre	⊢	Weld
	Crushed/	'Crimped	-	<u> </u>	Burrs	_		ions Incomplete/I	Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs			<u> </u>	Contamination	\vdash	Mainte		<u> </u>	Part Moved		
	Heat Tre			Ļ	Countersink		Mislabe		<u> </u>	Positioned V		ا ا
	Inspection	•	Tube	<u></u>	Cut Too Short	\vdash	Misread	i	L	Power Loss/	Surge	Other
	Ripples ii				Drill Holes	\vdash	Offset			<u></u>		
		Vaves in I		n L	Drawing	1		Calibration				
	Turning S	Sequence	ı	L	Finish	Ш	Out of S	Sequence				
	Wave/Tu	vist in Tu	he	1	Folio		Outside	Dimensions				

*September-13-12 1						– .						
Work Order ID: Parent Item: Parent Item Name:	90088 D212-664-201 Crosstube Aft								Date: 9/17/12 Qty: 1.00		Required Dat	
MS21920-28 Clamp(per MIL-DTL-87	783C)	Purchased	No			230	Each	111.0000	4	4	1/12	10 27
				Locatio	<u>n</u>	Loc Oty		Loc Code				
				FG		5						
					105884	5						
				LG050		38						
					118713	3						
					120054	2			-			
					122518	33						
				LG051		68						
					121440	8						
					122204	10						
					122838	50			¥ 1			
D3428-0 Placard		Manufactured	No			250	Each	5.0000	0909	931	JB	
Fig.				Location	<u>n</u>	Loc Qty		Loc Code			0	
				ST042		5						
					85228	5						
MS21042146 Nut		Purchased	No			250	Each	777.0000	6	6	2 B	
Tvut				Location	<u>n</u>	Loc Qty		Loc Code	<u> </u>			
				314		486					,	
					122441	486			122	441		
2MG				ST300		291						
					117677	25						
					118384	3						
					118927	48						
					119075	15				**		
ANOZOTDZIZ	NAS1149D0663J	5 1 1	No		120308	200 250	Each	0.0000	76	10	/	
AN960JD616 Washer	NAS1149D0663J	Purchased	NO			230	Eacn	0.0000	1230	21 18	-JB-	12/16/3
Smp											· ·	8

NCR:	Yes	1	No
NCK:	res	/	110

DQA: Date:

NCR:	'es	/ No				WORK ORDER NON-	CON	NFURN	HANCE / UPI	DATE	QA Closed:	Date	:		
						DISPOSITION				AGAINST DE	PARTMENT/	PROCESS			
Nork Orde	er: .					Rework			Skid-tube	Crosstube]	Water Jet	Engineering		
Part N	١o.					Scrap]		Machining	Small Fab	4	d. Eng. Coor.	Quality		
NCR i	No.	· · · · · · · · · · · · · · · · · · ·				Use-as-is Work Order Update			noforming Large Fab	Finishing Composite	Rec/Stor	e/Packaging Supplier	Other		
Root					Descr	ription of work order update		Initial	Act	tion	Sign &				
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Landi	ng (1				General	_	٦		_	7	_	-		
		Bending			L	Bend	\perp	Grain		_	Ovalized	<u> </u>	Pressure/Forced		
		Centre No	ot Concei	ntric to	o/s	BOM/Route	<u> </u>	Hardwa	re		Over/Under	tolerance	Temperature/Cure		
		Cracks			ļ	Broken/Damaged		Inspecti	ion Incomplete		Part Incorre	ct	Weld		
		Crushed/0	Crimped.			Burrs		Instruct	ions Incomplete/	Unclear	Part Lost/Mi	issing	Wrong Stock Pulled		
		Cuffs				Contamination		Mainte	enance		Part Moved				
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		Inspection	n Strip in	Tube		Cut Too Short		Misread	Ė		Power Loss/	Surge	Other		
		Ripples in	Bend			Drill Holes		Offset							
		Torque W	aves in E	xtrusio	n Γ	Drawing		Out of (Calibration						
		Turning S	equence			Finish		Out of !	Sequence						
		Wave/Tw	ist in Tul	ne .		Folio		Outside	Dimensions						

*September-13-12 1:08:33 PM

Work Order ID:

90088

Pårent Item:

D212-664-201

Parent Item Name:

Crosstube Aft

Start Date: 9/17/12

Required Date: 10/12/12

Start Qty: 1.00

Required Qty: 1.00

ANGEDA) Bolt	Purchased	No	250 E	ach 156.0000	GAMENTARY AND AND AND AND AND AND AND AND AND AND	4 - 28	8
		Location	Loc Qty	Loc Code		0	
		ST340	100				
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SWD		123021	50			_	
		ST342	56			_	
		120187	50				
		120833	4			_	
_		121827	2			_	
ANG-41/A	Purchased	No	250 E	ach 81.0000	2	2 JB	12/10
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31

1

30

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												DQA:	Da	ite:	· · · · · · · · · · · · · · · · · · ·
NCR:	Yes	/ No				WORK ORDER NON-O	O	NFORM	MANCE / UP	DATE					
			-			T						QA Closed:	υa	ite:	
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Work Ord	٠					Rework	1		Skid-tube	Crosstube			Water Jet	П	Engineering
Part I	۷in					Scrap	1 1		Machining	Small Fab		Pro	d. Eng. Coor.	П	Quality
''	٠٠.					Use-as-is	1		noforming	Finishing			e/Packaging	П	Other
NCR f	No.					Work Order Update	1		Large Fab	Composite			Supplier	$\overline{}$	
										•		· 			
Root					Descri	ption of work order update	1	Initial	Ac	tion		Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
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Equip/Tooling	Ш													İ	
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Material	Ш						ļ								
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Other	Щ														
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Supplier	Н														
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Unapproved	<u>i</u>		l	<u> </u>	<u> </u>	· · · · · · · · · · · · · · · · · · ·		T CATE	COBY			<u> </u>			
Landi						General	AUI	LICATE	GURY						
Landi		Bending				Bend	Г	Grain				Ovalized		Γ	Pressure/Forced
	-	Centre No	ot Conco	ntric to	0/5	BOM/Route	\vdash	Hardwa	ure.		\vdash	Over/Under	tolerance	\vdash	Temperature/Cure
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	-	Cuffs	pcu.			Contamination	-	Mainte	•	,		Part Moved	-	Щ.]

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D212-664 Rev. 6 OR LATER

REF. CANADIAN STC: SH01-9 REF. FAA STC: SR01298NY REF. EASA STC: EASA.IM.R.S.01304

PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D212-664-101/-101B @ CHG 005 D412-664-105 @ CHG 002 D212-664-107/-107B @ CHG 002

D212-664-201/-201B @ CHG 005 D212-664-207/-207B @ CHG 002

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4

For the crosstubes listed above, section 32.4 of ICA-D212-664 is amended as follows. Use Figure 1 of this service instruction and Figures 32-2 to 32-9 of ICA-D212-664 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

32.4 SUPPORT INSTALLATION

- 32.4.1 Locate the area on the crosstube for installation of support (see Figure 1 of this service instruction). For D212-664-101/-107/-201/-207 and D412-664-105 crosstubes, the outward face of the support tabs should be 14.0" (355mm) from the crosstube center for 204/205/210/412/UH-1 aircraft. For installation on 214B/B-1 aircraft, the outward face of the support tabs should be 13.75" (349mm). Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D212-664.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support as shown in Figure 1 of this service instruction.
- 32.4.6 Install the clamps opposite to crosstube support as shown in section A-A of Figure 1. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in the (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D212-664, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION **BRANCH** DAO # 01-O-01 D (DE # 02) DATE: 11.07.20 CERT. NO.: SH01-9 ISSUE NO .:

В	ADD 3	W 2216 ADHES	SIVE TO SUPPORT	CP	11.07.15		
Α	NEW IS	SSUE		CP	11.06.14		
REV.			DESCRIPTION	BY	DATE		
DESIGN	· ·	P	DART AERO	SPACE	LTD		
DRAWN	DRAWN 47		HAWKESBURY, ONTARIO, CANADA				
CHECK	ED.	ASS	DRAWING NO.		REV. B		
MFG. AF	PR.	N/A	DSI 9563	5	SHEET 1 OF 2		
APPRO\	/ED	M	TITLE		SCALE		
DE APPI	R.		SUPPORT INSTALLATI	ON CHANG	E NTS		
DATE 11.07.15			COPYRIGHT © 2011 BY D THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS NOT TO BE USED FOR ANY PURPOSE OR CONFED OR C WRITTEN PERMISSION FROM	S SUPPLIED ON THE EXPRE	SS CONDITION THAT IT IS		

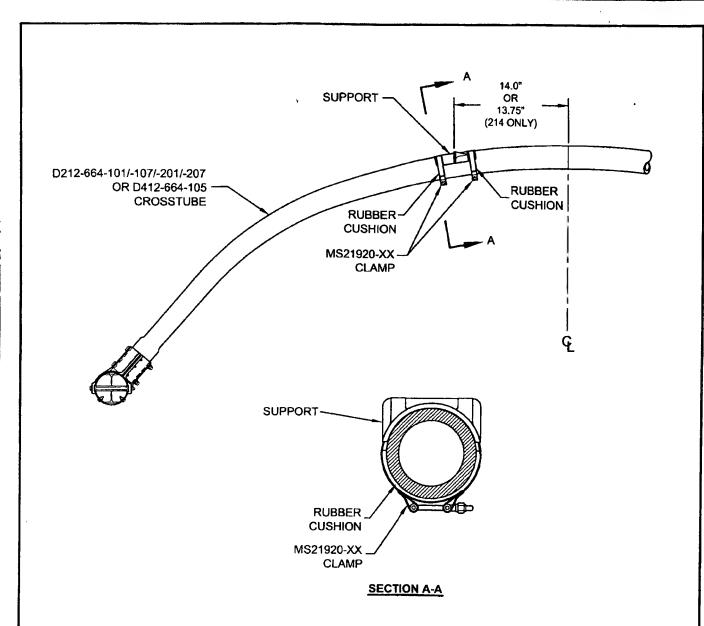


FIGURE 1: SUPPORT INSTALLATION

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION **BRANCH** DAO # 01-O-01

D. SHEPHERD (DE # 02)

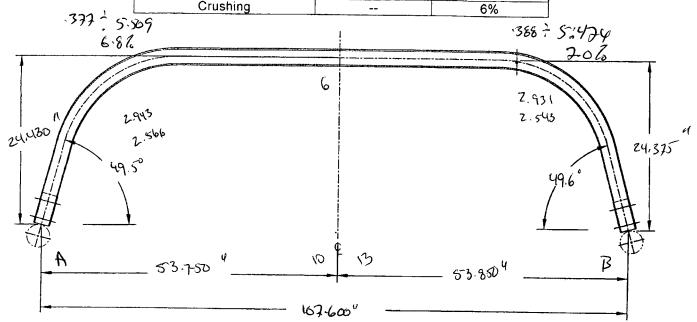
11.07.20 CERT. NO.: SH01-9

ISSUE NO.:

DESIGN	1 P	DART AEROSPACE LT	LD .
DRAWN	P	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ALS	DRAWING NO.	REV. B
MFG. APPR.	.N/A	DSI 9563 SHE	ET 2 OF 2
APPROVED	WP,	TITLE	SCALE
DE APPR.	-/#	SUPPORT INSTALLATION CHANGE	NTS
DATE 11.0	7.15	COPYRIGHT © 2011 BY DART AEROSPACE LTE THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CO NOT TO BE USED FOR ANY PURPOSE OR COPIED ON COMMUNICATED TO ANY OTHER P WRITTEN PERMISSION FROM DART AEROSPACE LT	21 TI TAHT HOSTION

DART AEROSPACE LTD	Work Order:	90688
Description: Crosstube High Aft (205/212)	Part Number:	D212-664-201
Inspection Dwg: D212-664-241 Rev: D		Page 1 of 1

Required Dimension	Min	Max
Height	24.17	24.43
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.70
Bending Passes	5	
Crushing		6%



	Side A	m	Diste	Side B		
Bending Passes	16		6	13		
Crushing	6.8%			7.0%		
Comments						
Sine Az 6.8% crushy @ 10 Passes						
Mipple z E	Passos.	$\overline{}$				
Sine 32 7.0	10 crushing	W	13 8	A-280.		
			· · · · · · · · · · · · · · · · · · ·			

QC15 Inspection	1043
Date	16 17/10/15

Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	Approved
В	07.05.08	Dimensions updated per Dwg rev. C	KJ/JLM	
С	10.04.01	Dwg Rev updated	KJ , A	
D	12.04.16	Added bending, crushing dimensions	KJ det	10

Item	Qty -241	Qty -241B	Part Number	Description
1	Х		D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2		Х	D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	1	D6006-129	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	4	4	MS21920-28	CLAMP (OR MS21920-30)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

1) MATERIAL. MANUFACTURED FROM D6006-129 FINISHED LENGTH = 124 362±0.020

2) FINISH. CHEMICAL CONVERSION COAT PER DART QSI 005 4 1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2

3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

4) UNITS: INCHES UNLESS OTHERWISE NOTED.

BREAK SHARP EDGES: 0 005 TO 0.010 MAX

IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS

WEIGHT: D212-664-241 = 44 2 lbs (PER IIN-D212-664) D212-664-241B = 44.2 lbs (PER IIN-D212-664)

PART IS SYMMETRIC ABOUT CENTERLINE.

9) RUN CUTTER OFF PART, BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.

10) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.

11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038

12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

13) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT

14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0 005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING

SHOP COPY RETURN 10 ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT WITHOUT NOTICE WORK ORDER

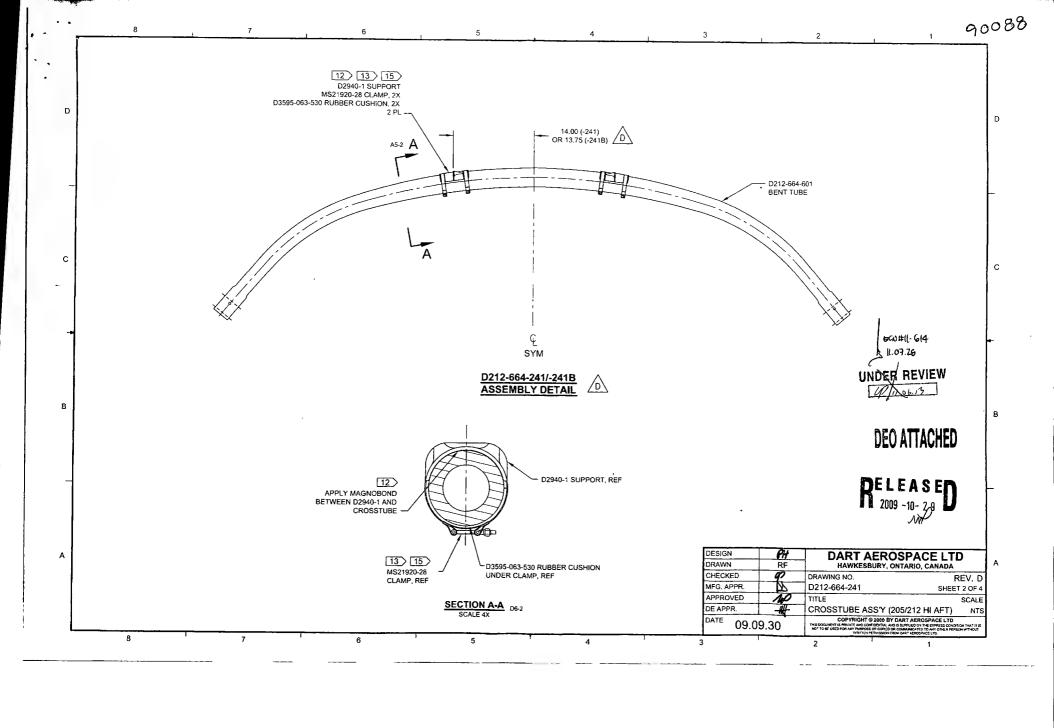
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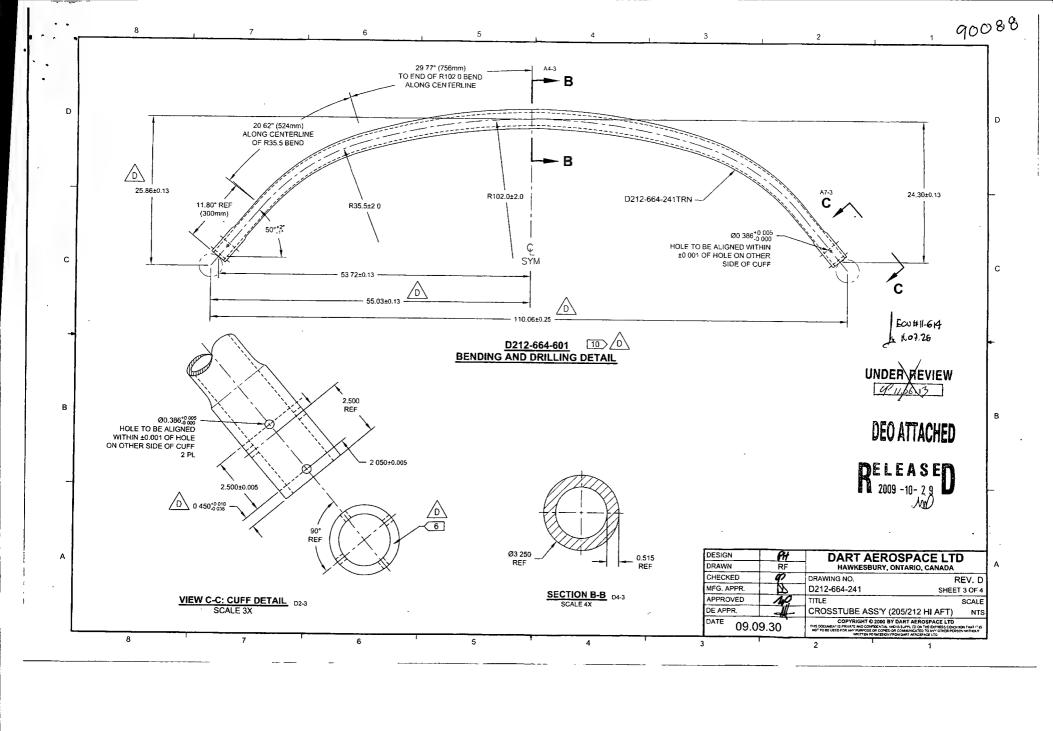
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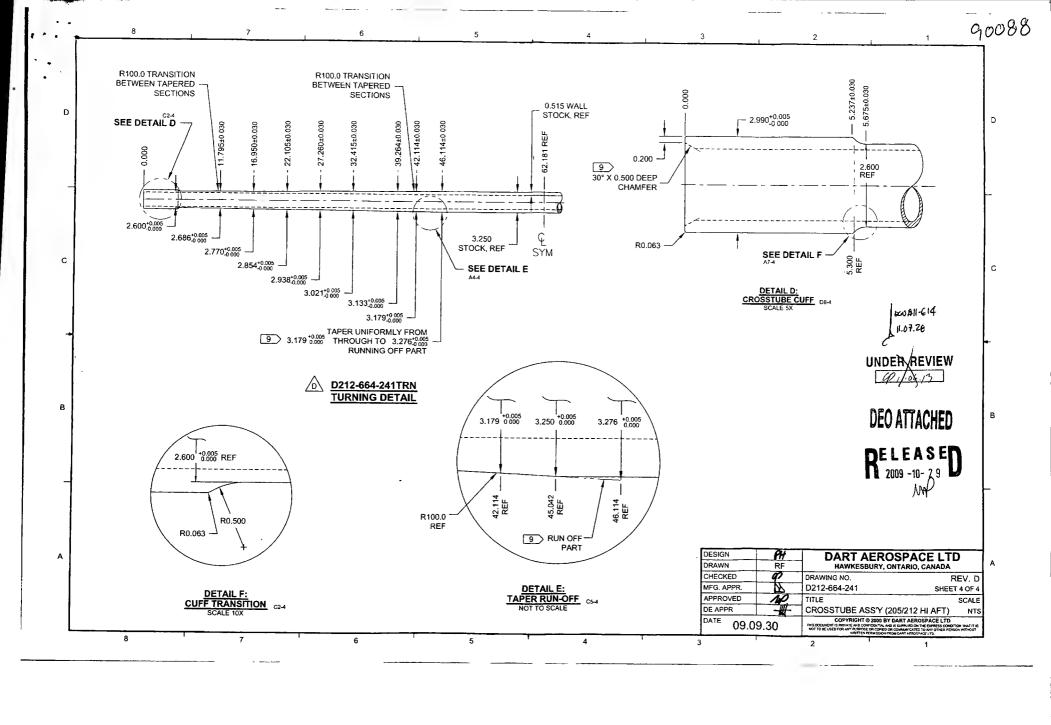
DEO ATTACHED

D	REORG TO CUP REMOV C6-3 &	MAT/REVISE G ANIZED VIEWS RENT STANDA ED REF & ADD A8-3); RELOCA MOVED TURNIN ET 4	RF 09.09.30				
С			ASION STRIP; ADD MAGNOBOND ERSE CLAMPS	PH	07.03.08		
В	ADD H SKIDTI		MPATABILITY WITH BHT/AA	PH	05.02.04		
Α	NEW IS	SSUE	PH	00.12.12			
REV.			BY	DATE			
DESIGN ##			DART AEROSPACE LTD				
DRAWN RF		RF	HAWKESBURY, ONTARIO, CANADA				
CHECKED P		P	DRAWING NO RE				
MFG. APPR.		77	D212-664-241 SHEET 1 OF				
APPROVED 10		140	TITLE SCALE				
DE APPR.		#-	CROSSTUBE ASSY (205/212 HI AFT) NTS				
DATE 09.09.30			COPYRIGHT © 2000 BY DART AEROSPACE LTD NS DOCUMENT SWART AND COMPRESSION, AND IS SUPPLED ON THE COPYRISE CONTROL THE 'IT IS NOT TO BE USED FOR ANY INTERNISES OF THE ON DAY I AEROSPACE LTD. WHETTEN FRINGES OF THE ON DAY I AEROSPACE LTD.				

В







DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-241	CROSSTUBE ASSY (205/	212 HI AFT)	ENGINEERING ORDER	D212-664-241-D-1	SHEET 1 OF,2	NTS
DRAWN 5	CHECKED	(N	MFG. APPR.	APPROVED MP	DE APPR.	
DATE 11.04	.07 DATE	11.04.11	DATE /1.04.12	DATE 11/04/12	DATE 11.04.12	

PURPOSE:

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

IS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND

PAINT OUTSIDE PER DART QSI 005 4.2 REMOVE MASKING AND APPLY CLEAR COAT

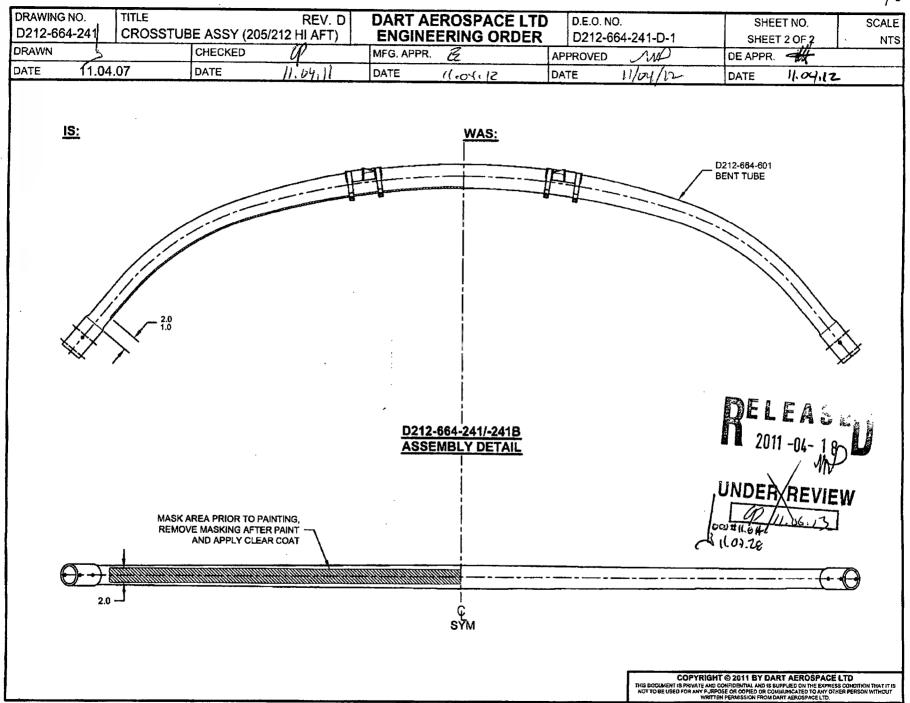
WAS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2

BCV#11-614



DRAWING NO.	TITLE	REV. D	DART AEROS	PACE LTD D.E	.O. NO.	SHEET NO.	SCALE
D212-664-24	1 CROSSTUE	BE ASS'Y (205/212 HI AFT)	ENGINEERIN	G ORDER D2	12-664-241-D-2	SHEET 1 OF 1	NTS
DRAWN	P	CHECKED ASS	MFG. APPR.	APPRO	VED JAN	DE APPR.	
DATE 11	.07.15	DATE 11.07.20	DATE 17.0	7.21 DATE	11/27/21	DATE 11-07.2	i

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

item	Qty -241	Qty -241B	Part Number	Description
7	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
1				ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,
				TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2940-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

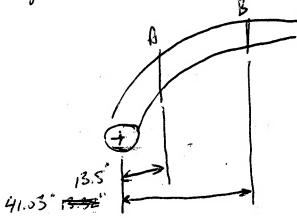


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CRUSHING OF DZ12-664-201

Acceptability of 8% CRUSHING



Point Bo ODI = 2.548, ODZ = 2.992 in (RUHING (2.992-2.548)/(2.992+2.548) = 8% I = 1.476 , 4

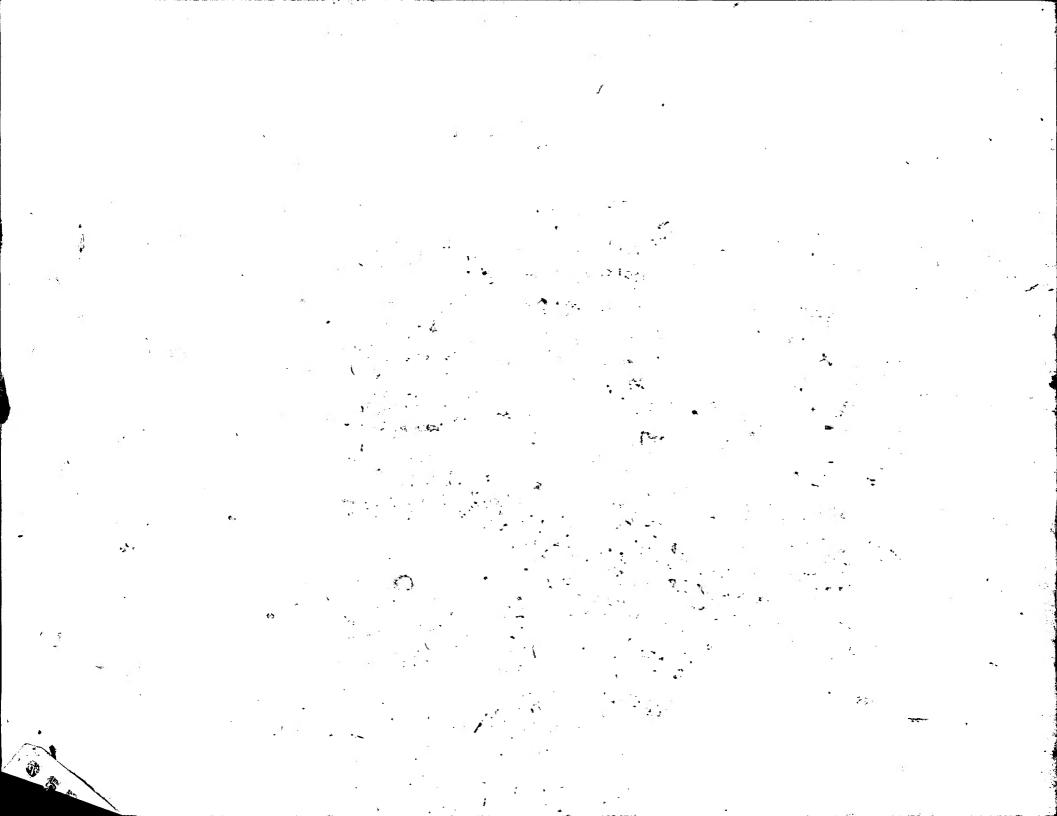
Point Bo OD = 3.25 in 10 = 2.22 in I = 4.284 in 4

A: F = MC/I = Px 13.5 x 2.548/2 x 1.476 = 11.65 P B: Px 41.03 x 2.992/2 x 4.184 = 14.32 P

ms = 14.32/11.65 -1 = 0.22

Time will fail at support before area of 8% CRUSHING AT END OF BEND
15 ACCEPTABLE

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CLIENT ATTENTION ADDRESS	Dant Lin 1270 AB HAWKE	ACIO. DA / A ELSEEN SBURY	SACE WDY JON	=	DATE ACUREN JOB N PO/WO NO. WORK LOCATIO	ON S	16/10 98-10 AME 49/01-0	PAGE TIME	AM 2 376.	OF
PROJECT	F.	P.=.	Mac	4.46	ACCEPTANCE S		CRUSS M	70.81	<u>es</u>	
JOB DESCRIPTIO)N	PROCEDURE	No. LTOO	REV./DA1		TECHNIQU	JE NO. LT			2008
PART NO. SCOPE A A A A A A A A A A A A A	SEE WET COMP	LIBU.	D PE	7	MATERIAL A	ouRES	سر میرکز <u>=</u> سیرکز <u>=</u>	THICKNESS TDYL FACE	Tys.	Palar
~ <u>~</u>				<u> </u>						
TEST DETAILS METHOD FAMILY BRAND PENETRANT	246 N	ORESCENT AFTCAP MINIMUM DV	WELL TIME &	536 M		S/N /645 UIP. 🖸 FLASHL	OUTPUT TROUB	NT REMOVABLE Γ > 1000 μW/C BLELIGHT 🚨 ('CM ² □ AME	DST EMULSIFIED BIENT < 2 fc) fc @ SURFACE
PENETRANT REMOVE DEVELOPER	SKD 52	MINIMUM DE MINIMUM DV	RY TIME	>10 M	IIN. OTHER	LABI	98866		AL DUE DATE	il
DEVELOPER TYPE	Non Aq	WUEUUS DAC	QUEOUS	☐ DRY						
TEST SURFACE		a pico	D Acta	ED.	MACHINED		OT BLASTED			ARE M ETAL
SURFACE CONDITION	ON AS GROUNTIES OF S - 4°C/		☐ AS WELD	°F TO 10°C			°C/50°F TO 52°	°C/125°F	□ > 52°C/12	
SURFACE TEMPERAT						10				
RESULTS-	METRIC	- // .	12	ACCEPT REJ	ECT . ×	XX	X >	K, K	XX	
				 						
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Scope of Services	Grown Inc. to perform ser	rvices extends only to the	hose services provide	ed for in writing.	Under no circumstances	shall such services e	extend beyond the per upplied by the	rformance of the req	quested services. It sot intended nor co	t is expressly underst in they be construed
that all descriptions, comm	iments and expressions of c nties. Acuren Group Inc. i a provided by Acuren Grou	is not assuming any res	esponsibilities of the o all Acuren Group Inc.	owner/operator a c.'s liability in resp	and the owner/operator reta pect of the services referred	tains complete respor ed to herein exceed th	nsibility for the engin he amount paid for su	neering, manufacture uch services.	re, repair and use as	tecisions as a resuit of
Standard of Care In performing the services implied, is made or intende	's provided, Acuren Group	p Inc. uses the degree, c	care and skill ordina.	uy exercised un	summer circumstances	, comers performin		Seristal 16		
implied, is made or intend	Town or Group Inc.									
SIGNATURES					10) 11			DTR# 1	E-6:	3822
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